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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,970	08/08/2000	Mark Ernest Davidson	1322/48	4832

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EXAMINER

SIDDIQI, MOHAMMAD A

ART UNIT PAPER NUMBER

2154

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Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p>09/633,970</p>	<p>Applicant(s)</p> <p>DAVIDSON ET AL.</p>	
	<p>Examiner</p> <p>Mohammad A Siddiqi</p>	<p>Art Unit</p> <p>2154</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-30 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al (5550914) (hereinafter Clarke) in view of Dao et al. (Configurable Flow Control Mechanism for Fault-tolerant Routing, May, 1995, ACM SIGARCH Computer Architecture News, Volume 23 Issue 2, ACM publication) (Hereinafter Dao).

4. As per claims 1 and 24, Clarke teaches a method for controlling call (col 1, line 65) signaling message flow (col 2, lines 1-4) through a signaling node (col 2, lines 1-2) when a signaling link fails (col 13, lines 30-42), the method comprising:

(a) receiving (col 2, lines 33-35) a first call signaling message (fig 2, element 23) at a first (col 2, lines 33-35) communication (col 2, line 21-30) module associated with the first signaling link (col 2, lines 20-41);

(b) determining a second signaling link (col 2, lines 43-45) to which the first call signaling message (col 2, lines 55-56) should be routed for outbound transmission (col 7, lines 57-61) based on address information in the first call signaling message (col 2, lines 55-60);

(c) determining whether a linkset (col 5, lines 35-38) associated with the second signaling link (col 2, lines 64-67) is on-hold (col 6, lines 54 -60) on hold can be accomplished by reading the flag), and, in response to determining that the linkset (fig 1, element 18, col 5 line 35) is on-hold (col 6, line 54, on hold can be accomplished by reading the flag), storing the first call signaling message (col 2, lines 55-56) in a memory buffer associated (col 2, lines 64-67) with the first communication module (col 2 ,lines 23-67);

(d) determining when the linkset (col 7, lines 25-30) becomes off-hold (col 6, line 54 and col 12, lines 58-67, off hold can be accomplished by reading the flag), and, in response (col 13, line 50), transmitting (col 13, line 34) a ticket voucher request message (col 13, lines 30 -51) from the first communication module to a plurality of second communication modules (col 13 lines 30-52);

(e) in response to transmitting the request message receiving a ticket voucher grant (col 12, lines 55-67) indicating that one of the plurality of second communication modules (col 13 lines 30-52) is capable of transmitting the first call signaling message (col 2, lines 55-56) over an outbound signaling link (col 7, lines 57-61); and

(f) in response (col 9, line 45) to receiving the grant (col 8, lines 50-57), routing (col 12, lines 58-60) the first call signaling message (col 2, lines 55-56) to one of the second communication modules (col 2, lines 55-60) based on address information in the call signaling message (col 13 lines 30-52). Clarke fails to disclose within a signaling node. However, flow control mechanisms for fault-tolerant routing within a signaling node, and determining to hold the path until message reaches the destination are well known in the art. Dao, for example, discloses Flits are moved from input channel buffers to output channel buffers within a signaling node (ticket voucher messages are messages transmitted between inbound and outbound such as flits, section 2.1 Network model, page 221), and determining to hold the path until message reaches the destination (section 2.4, page 222). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Clarke and Dao. The motivation would have been implementing configurable flow control mechanism for fault tolerant routing within a node.

5. As per claim 2, Clarke teaches transmitting a ticket voucher request message includes specifying a group number in the ticket voucher request message of communication modules capable of routing the first call signaling message to external nodes (fig 3, col 7, lines 4-24, destination is an external node).
6. As per claim 3, Clarke teaches transmitting a ticket voucher request message includes addressing the ticket voucher request message to the first communication module (col 13, lines 30-51).
7. As per claim 4, Clarke teaches starting a sequence timer (col 4, lines 9-11) in response to failure of the second signaling link, and wherein determining whether the linkset is on-hold includes determining whether the sequence timer has expired (col 12, lines 58-67 and col 13, lines 1-25).
8. As per claim 5, Clarke teaches a signaling link to which the first call signaling message should be routed includes determining the signaling link based on message transfer part (MTP) information in the first call signaling message (col 5, lines 54-61).
9. As per claim 6, Clarke teaches the MTP information (col 5, lines 54-61) includes the signaling link selection (SLS) code (fig 3, col 7, lines 4-23) and

the destination point code (DPC) in the first call signaling message (fig 3, col 7, lines 4-23).

10. As per claim 7, the claim is rejected for the same reasons as claim 1, above. In addition, Clarke discloses receiving, at a first communication module (col 2, lines 33-37), a ticket voucher request message (col 13, lines 30-51) transmitted from a second communication module (col 2, lines 60-64);

(b) determining whether the ticket voucher (col 13, lines 30-51) request message (col 13, lines 30-36) is intended for the first communication module (col 2, lines 33-64);

(c) in response to determining that the ticket voucher request message (col 13, lines 30-36) is intended for the first communication module (col 2, lines 33-64), determining whether any grants are available based on the loading capacity (col 4, lines 1-22) of outbound signaling links associated (col 7, lines 57-61) with the first communication module (col 2, lines 34-64); and

(d) in response to determining that grants are available (col 4, lines 1-22), issuing a grant to the second communication module (col 4, lines 1-22 and col 2, lines 33-64).

11. As per claim 8, Clarke teaches issuing a grant to the second communication module includes sending a ticket voucher grant message (col 13, lines 30-51) to the second communication module via an interprocessor message transport bus (fig 3, col 7, lines 4-17 and col 2 lines 22-67).

12. As per claim 9, Clarke teaches sending a ticket voucher grant message includes altering a request/grant (col 13, lines 30-51) indicator field in the ticket voucher request message and forwarding the modified ticket voucher request message over the IMT bus (fig 3, col 7, lines 4-17 and col 2 lines 22-33).

13. As per claim 10, Clarke teaches determining whether the ticket voucher request message is intended for the first communication module includes determining whether the ticket voucher request message (col 13, lines 30-51) is addressed to the group of the first communication module (fig 3, col 7, lines 4-17 and col 2 lines 22-67), and in response to determining that the ticket voucher request message is not addressed to the group of the first communication module, forwarding the ticket voucher request message over an interprocessor message transport (I MT) bus (fig 3, col 7, lines 4-17 and col 2 lines 22-67).

14. As per claim 11, Clarke teaches the ticket voucher request message is addressed to the group of the first communication module, determining whether the request has been granted, and, in response to determining that the request has been granted, forwarding the ticket voucher request message over the IMT bus (fig 3, col 7, lines 4-17 and col 2 lines 22-67).

15. As per claim 12, the claim is rejected for the same reasons as claim 1, above. In addition, Clarke teaches placing a linkset on (col 5, lines 35-41) hold based on failure (col 6, lines 54-60) of one or more signaling links in the linkset (col 5, lines 35-41);

(b) starting a sequence timer for the linkset (col 4, lines 1-23);

(c) receiving a call signaling message directed to one of the (col 2, lines 20-67) signaling links in the linkset (col 5, lines 35-41);

(d) storing the call signaling message in a queue (fig 5, element 84, col 2, lines 64-67); and

(e) in response to expiration of the sequence timer (col 4, lines 1-22), issuing a ticket voucher request message to cards (col 5, lines 54-61) capable of sending the call signaling message over an outbound signaling link (col 13, lines 9-52).

16. As per claim 13, Clarke teaches receiving a ticket voucher

grant message in response to the ticket voucher request (col 12, lines 55-67) and, in response, sending the call signaling message to a card associated with an outbound signaling link (col 7, lines 57-61).

17. As per claim 14, Clarke teaches (a) receiving a ticket voucher grant message request (col 13, lines 30-51);

(b) determining whether the ticket voucher grant message (col 13, lines 30-51) is from a card associated with the linkset (col 5, lines 35-41); and

(c) in response to determining that the grant message (col 13, lines 30-51) is not from a card associated with the linkset (col 5, lines 35-42, ignoring the ticket voucher grant message (col 12, lines 1-33)).

18. As per claim 15, Clarke teaches in response to determining that the ticket voucher grant message is from a card associated with the linkset (col 12, lines 1-33), sending the call signaling message to an outbound signaling link (col 7, line 57-61).

19. As per claim 16, the claim is rejected for the same reasons as claim 1, above. In addition, Clarke teaches receiving called signaling messages addressed to an on-hold linkset (col 2, lines 23-67);

(b) enqueueing the call signaling messages in a ticket voucher queue (col 2, lines 60-67);

(c) in response to determining that the linkset (col 5, lines 34-43) is no longer on hold, issuing ticket voucher request messages for the call signaling messages (col 2, lines 23-67) in the ticket voucher queue (col 13, lines 30-52);

(d) monitoring outbound signaling link capacity (col 7, line 21-61);

(e) issuing ticket voucher grant messages at a rate based on outbound signaling link capacity (col 5, lines 30-41 and col 13, lines 30-52);
and

(f) in response to the ticket voucher grant messages (col 13, lines 30-52), sending the call signaling messages to outbound signaling links (col 7, line 21-61).

20. As per claim 17, Clarke teaches issuing ticket voucher grant messages at a rate based on outbound signaling link capacity includes dividing the outbound signaling link capacity into predetermined time intervals and issuing a predetermined number of ticket voucher grants during each time interval (col 4, lines 1-15).

21. As per claim 18, the claim is rejected for the same reasons as claim 1, above. In addition, Clarke teaches a first communication module for determining whether messages (col 2, lines 33-45) are present in a ticket voucher queue and for issuing ticket voucher request messages (col 2, lines 55-67) in response to determining that messages are present in the ticket voucher queue (col 3, lines 3-15); and

(b) a plurality of second communication modules for receiving the ticket voucher request messages (col 2, lines 45-55), determining whether any ticket voucher grants are available (col 13, lines 30-52), and, in response to determining that ticket voucher grants are available (col 13, lines 30-52), issuing ticket voucher grants to the first communication module (col 2, lines 22-67), wherein, in response to receiving the ticket voucher grants (col 3, lines 3-8), the first communication module forwards (col 2, lines 55-60) the call signaling messages to one of the second communication modules for outbound processing (col 2, lines 20-67).

22. As per claim 19, Clarke teaches the first communication module includes a ticket voucher request generator/grant processor for issuing the ticket voucher request messages and processing the ticket voucher grants (col 13, lines 30-52).

23. As per claim 20, Clarke teaches each of the second communication modules includes a ticket voucher request processor/grant manager for receiving the ticket voucher request messages and issuing the ticket voucher grants (col 2, lines 40-63, and col 13, lines 30-52).

24. As per claim 21, Clarke teaches the first communication module includes a ticket voucher queue for storing the call signaling messages until the ticket voucher grants are received.

25. As per claim 22, Clarke teaches the first communication module is adapted to send the ticket voucher request messages only in response to determining that a linkset to which the en-queued messages are addressed is off-hold.

26. As per claim 23, Clarke teaches each of the second communication modules includes grant timer for spacing issuance of the ticket voucher grants over a predetermined time interval (col 4, lines 1-11).

27. As per claim 25, Clarke teaches wherein the third communication module is adapted to apply a burst management algorithm when issuing the ticket voucher grant messages (col 3, lines 59-67 and col 4, lines 1-11).

28. As per claim 26, the claim is rejected for the same reasons as claim 1, above. In addition, Clarke teaches receiving a plurality of call signaling messages (col 2, lines 33-41) from an inbound signaling link that are directed to an outbound signaling (col 2 lines 23-32) linkset that has been placed on hold (col 6, lines 54-60);

(b) buffering (col 2, lines 64-67) the call signaling messages for a predetermined time period (col 4, lines 1-11);

(c) in response to expiration of the predetermined time period (col 4, lines 1-11), issuing ticket voucher request messages to outbound communication modules (col 13, lines 30-52);

(d) receiving ticket voucher grant messages from the outbound communication modules (col 13, lines 30-52); and

(e) routing the call signaling messages (col 12, lines 20-67) to the outbound communication modules in response to the grant messages (col 13, lines 30-52).

29. As per claim 27, Clarke teaches receiving call signaling messages from an inbound signaling link includes receiving call signaling messages from a service switching point (SSP) (fig 1, col 5, lines 25-41).

30. As per claim 28, Clarke teaches receiving call signaling messages from an inbound signaling link includes receiving call signaling messages from a signal transfer point (STP) (fig 1, col 5, lines 25-41).

31. As per claim 29, Clarke teaches receiving call signaling messages from an inbound signaling link includes receiving call signaling messages from a service control point (SCP) (fig 1, col 5, lines 25-41).

32. As per claim 30, Clarke teaches receiving call signaling messages from an inbound signaling link includes receiving call signaling messages from a media gateway controller (MGC) (fig 4, col 7, lines 24-50, gateway must be part of the ss7 network).

Response to Arguments

33. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 5,485,578 and 5,165,019 teaches ticket voucher messaging.

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad A Siddiqi whose telephone number is (571) 272-3976. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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